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ABSTRACT

The Classroom Creativity Observation Schedule (CCOS) is designed to gather objective information about student and teacher behaviors which relate to students' creative growth. The revised schedule, based on the 1966 version, is composed of eight items designed to assess classroom behavior on the dimensions of: motivational climate; student-student relationships; teacher-student relationship; student interests; student initiative and control of instruction; teacher approach; provision for divergent thinking; and encouragement of unusual student response. Both verbal and non-verbal behaviors are assessed, and the contexts of behaviors are considered. Two types of items are included, a category type in which the observer directly locates behavior on a dimension according to detailed instructions, and a measurement type in which symptomatic behaviors are recorded as signs within defined dimensions. The units of teacher behavior and classroom variables sampled are two minutes in length, and behaviors occurring during these intervals are categorized. (Detailed instructions for recognizing and coding relevant behaviors, a blank score sheet, and two tables for quick computation of results are included). (Author/GDC)

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ED183605

# CLASSROOM CREATIVITY OBSERVATION SCHEDULE

## Direction Manual

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Revised April 1969

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1969

PREFACE

The purpose of this observation schedule is to gather some objective information concerning teacher-pupil behaviors which relate to pupil creative growth.

The present schedule is a revision of one designed by David Denny, Reuben Rusch and Sammie Ives and reported by Denny as the final report of a USOE Cooperative Research Project entitled A Preliminary Analysis of an Observation Schedule Designed to Identify the Teacher-Classroom Variables Which Facilitate Pupil-Creative Growth (CRP No. 6-8235-2-12-1, Indiana University, 1966, ED 010 194). This revision is based on the findings of the Indiana study and should serve to increase the objectivity, reliability and validity of the schedule. Unreliable or invalid items have been eliminated and scoring procedures revised to effect a higher degree of objectivity and ease of scoring.

As in the original version, alterations of schedules developed by Francis G. Cornell and Associates in An Exploratory Measurement of Individualities of Schools and Classrooms (Bureau of Educational Research, University of Illinois, 1952) are found in items BA and AD and are reproduced with permission.

A limited trial of this revised version was conducted in the spring of 1969 to revise the scoring procedures. The assistance of Miss Barbara Nathan and Miss Judy Gray was greatly appreciated. The revised version has not been investigated for reliability and validity, however, and should be considered a research edition. Formal studies are anticipated to further develop the schedule and interested persons are encouraged to write the author to be informed of these findings. Furthermore, persons wishing to use the schedule will be granted permission upon request to the author and are encouraged to share with him any reliability and validity data so obtained.

D. A. D.
May, 1969
Oneonta, New York

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## INTRODUCTION

The background and rationale of the CCOS will be only briefly discussed here. The reader is referred to the sources listed in the bibliography for detailed background data.

The 1969 Revision of the CCOS is based on the Denny, Rusch, Ives Classroom Creativity Observation Schedule developed by Denny in 1966 in Indiana (Denny, 1966; 1968). This schedule was specifically designed to identify teacher behaviors and classroom variables which foster pupil creative development. Thus, this schedule is somewhat unique when compared to the extant schedules most of which were designed to identify prevalent aspects of teacher and/or pupil behavior and then were investigated to determine what product relationships, if any, existed. The reasoning for designing a schedule specifically to identify process to product relationships was the belief that the classroom system is so complex that no simple one-to-one relationship exists between teacher behavior and broad realms of pupil growth. Furthermore, existing schedules appeared to neglect the more intangible, non-verbal behaviors and context and content of acts and statements believed especially important in fostering pupil creativity.

The CCOS is designed to include categories of classroom behavior suggested by psychological literature relating to creativity development and the creative personality, and by prior empirical studies of pupil creative development (Rusch, Denny, Ives, 1965; 1967). Further validity data was provided by examining relationships to teacher characteristics (Turner and Denny, 1969).

The revised schedule consists of eight items designed to assess classroom behavior in an equal number of hypothesized dimensions. The dimensions combine to form two major regions. A diagram of the regions and dimensions is presented in Figure 1. It will be noted that Classroom Climate and Teaching-Learning Structure is sub-divided into two categories, General Provisions for Structuring the Learning Situation, and Specific Structuring for Creative Development. It will be observed that the climate region encloses the structure region indicating Classroom Climate is a prerequisite for structuring to be effective in pupil creative development. In like manner, General Provisions for Teaching-Learning Structure are considered necessary for Specific Structuring to be effective. Code letters in Figure 1 refer to items of the observation schedule which purport to measure the dimensional aspect.

The CCOS assesses both verbal and non-verbal behaviors and considers context of acts. Two types of items are included, a category type in which the observer directly locates behavior on a dimension according to detailed instructions, and a measurement type in which symtomatic behaviors are recorded as signs within defined dimensions. The units of teacher behavior and classroom variables sampled are two minutes in length and behavior occuring during these intervals are categorized.

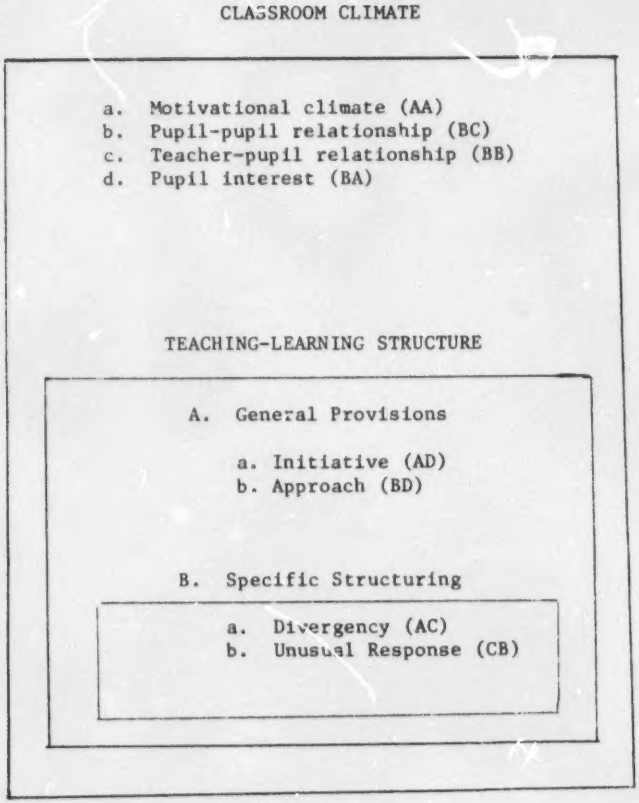


Figure 1. Hypothesized Dimensions of Classroom Interaction

SCORING DIRECTIONS

The total score is obtained by combining the average scores for items of Schedules A and B and the total score for Schedule C. Thus a maximum total score would be 32 plus a score for Schedule C (an unlimited item). Such a high score would be unusual, however.

The average scores for the items in Schedule A are obtained by totaling the codes assigned for each time interval and dividing by the number of intervals observed. The maximum number of intervals provided for on the score sheet is ten.

The average scores for the items in Schedule B are obtained by counting the number of circled numerals and subtracting minus from plus totals. Then dividing by the number of intervals observed. The maximum number of intervals provided for on the score sheet is five. It will be observed that a negative average could be obtained for items in Schedule B. In such cases the negative average is subtracted from the positive average in arriving at the overall total score.

Appendix B of this manual contains an aid for computing the necessary averages.

GENERAL DIRECTIONS

The observation schedule described in this manual is concerned with both verbal and non-verbal behavior of pupils and teachers in a classroom situation. The observer must be aware, therefore, of both the content of the verbal statements made by the teacher and pupils and the physical presence of the teacher and pupils in the classroom. This will necessitate the observer breaking his normal habit of watching the person speaking to also observe the reaction of the person being spoken to. For example, how does the pupil react to a teacher comment or how does the teacher react to a pupil comment? What are the facial expressions; what are the bodily postures which indicate reaction?

Actual physical activities of pupil and teacher are observed. For example, sometimes the teacher might poke the child with a pencil or some other object. At other times the observer might notice the teacher punctuating comments by banging the chalk hard against the board. Or, the observer might find the teacher correcting a child's work. These examples are given here to underline the fact that the observer is concerned not only with the verbal interaction but also the physical interaction of teacher and pupils.

Since the observation schedule is concerned with the development of creativity, the context of a given behavior takes on particular importance in this schedule. The observer must be aware of the content of the lesson as it proceeds and must be able to interpret statements by pupils and teacher in terms of the context in which they are located. For example, a statement of "good" by the teacher takes on one meaning in the context of "put away your books," and another in the context, "I would like some original remarks."

SCHEDULE A

During two minute intervals, on each of the three listed dimensions, (motivational climate, convergent-divergent thinking, and initiative), the observer will categorize behaviors using a five point code. That is, if the observer begins scoring at 2:00, at 2:02 he will place three numbers under interval one, each number representing his best judgment of the extent to which that dimension was present during the two minute interval. At 2:04 he will place three numbers under interval two. Then he will turn to Schedule B during the next two minute interval returning to Schedule A at 2:08 for interval 4, etc.

Please note, in all three parts of Schedule A a zero code (Code 0) may be used when there is no opportunity to assess. This code would be used for that two minute interval in which the observer can not infer the situation from the previous time interval. For example, the observer enters the room and finds the class reading or taking a

test and the teacher seated at the desk. The observer may reserve the right to change a zero category to one of the scored categories if he should discover, subsequent to the initial zero category, the conditions underlying an activity. For example, the observer might enter the room and find the children working quietly at their seats and the teacher doing nothing to indicate motivational climate. After five or ten minutes the teacher might say "Alright, now you've had a chance to study for the test. We will now put away the books and take the test." This would indicate the motivational climate underlying the prior ten minute interval. The same situation might apply in either of the other categories of Schedule A.

The score for Schedule A is the average obtained by dividing the total by the number of two minute intervals observed.

A. Motivational Climate

We are concerned with the entire classroom situation, how the teacher relates to the pupils and how they relate to him. We are interested in hearing what the teacher says and seeing what he does, whether he is negative or positive in his motivation of the children. A distinction should be made here between negative and positive comments such as "yes" and "no" and derogatory or threatening attitudes and statements. The negative and positive comments are not an issue here. We are concerned with the context in terms of its threat to the child. A negative statement by the teacher can be a positive motivation if it is in such a context. For example, in correcting work a "no" is not threatening if the correcting of the work is in the context of pupil-growth rather than in the context of grades and the threat inherent in grades.

Tests should normally be thought of as threatening. However, the context in which a test is given is an important consideration. For instance, if the tests are used to improve the pupil's work or to show where weaknesses exist and scores or grades are not taken, such as mid-week spelling test or a diagnostic arithmetic test, then a three or four positive category should be checked.

It is important to consider behavior other than verbal in motivational climate. In the instance in which there might be no verbal response but the teacher is smiling, approving, and otherwise indicating encouragement, a positive score could be given or vice versa.

In the cases in which the teacher leaves the room the previous motivational climate is considered to maintain through that interval.

0. No opportunity to assess.
1. Continuous negative motivation-motivation, a continuous factor and at all times negative.
2. Predominately negative motivation-motivation, when used is usually negative but not used at all times.

3. Combination-both negative and positive or neutral motivation used.
4. Predominately positive motivation-motivation, when used is usually positive but not used at all times.
5. Continuous positive motivation-motivation, a continuous factor and at all times positive.

Explanation of Code for Section A. Motivational Climate.

Code 0. No opportunity to assess.

Code 1. - Continuous negative motivation - This code refers to the time interval in which the teacher uses a continuous and negative approach to motivating children. For example, the teacher may warn pupils of possible punishment (directly or indirectly), future failure, etc.: "If you don't hurry up and get busy you'll all be here next year." "Come to think of it, I have to stay here after school anyway and I would be happy to have you join me." The teacher may express negative motivation by shaking her head negatively, recording names for punishment on the board or in a grade book. No positive motivation is used in Code 1.

Code 2. - Predominately negative motivation - During this time interval the motivational techniques are negative, as those examples above, but spasmodic. For example, the teacher may give an assignment and then make one or two negative comments. Few positive comments are made. Code 2 is different from Code 1 in that there is not as much negative motivation and there can be some positive motivation ("Johnny, you're doing a good job"), however, there will not be as much positive motivation as negative. When there is an equal amount of positive and negative motivation Code 3 is used.

Code 3. - Combination - During this period of time the teacher equally uses both negative and positive motivation. For example, there is a direct presentation of the assignment followed with negative and positive comments. ("You may not be able to do this but I'm sure you will try hard.")

Code 4. - Predominately positive motivation - During this time interval the motivational techniques are positive but spasmodic. For example, the teacher speaks of future success of pupils, the teacher encourages by references to self-improvement (growth) and continued progress expected. Failure is referred to as a means of possible growth. Few negative comments may be used, but positive comments are predominant.

Code 5. - Continuous positive motivation - Code 5 is

distinguished by no negative motivation. There can be three different situations, however, which could characterize a Code 5 situation:

1. Code 5 could differ from Code 4 in that the teacher is continuously employing a positive motivation in feed-back form to the children. For example, whenever a child makes a remark the teacher responds rewardingly and failure is referred to as a means of growth.

2. The teacher develops self-motivation by having the children plan cooperatively what it is they are to do. Such a planning situation must be observed for the observer to record a Code 5 during the consequent work period.

3. Freedom to explore through a discovery-question approach will positively motivate children. The teacher using the discovery technique will eliminate the need for any direct or indirect reference to progress. The observer would probably not find the teacher rewarding directly with positive statements. However, the observer would find children being challenged and with curiosity aroused they will be self-motivated. ("How can we find out if white objects absorb more or less heat than dark objects?")

C.* Teacher Role in Encouraging Convergent and Divergent Thinking

The distinction in this item is between divergent and convergent thinking on the part of pupils. By convergent is meant moving toward the accepted or correct, a response that all can agree upon. By divergent is meant a response which is not necessarily the one right answer, a response which is original, a response situation in which there is more than one answer which is suitable. The key in observing this category is the type of questions the teacher asks the children and the kind of subject matter utilized. If the teacher is asking the children questions which are specific and which have one right answer this would be of a convergent nature. If the teacher is asking the children to think of something on their own in an open-ended way, such as asking them what their opinion is or allowing them to speculate, we would be seeing something at the divergent end of the scale. In some cases the teacher

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* Rather than using new designations when the original schedule was revised to eliminate some items, the original was retained for comparison purposes.

may, by his selection of content, provide divergent thinking through the stimulation of the child's imagination. For example, the reading to the class of an imaginary story would be a case in which the teacher by selecting a stimulating story is exciting the imagination of the class. Another example would be the situation in which the class is allowed to read library stories of their own choice without specific assignments to look for facts in these books. This would be another example of the divergent end of the scale. Occasionally the observer will find originality being directly and specifically encouraged. This could be in mathematics where different ways of solving problems are requested or in the area of language arts in which creative writing is being done.

0. No opportunity to assess.
1. Primary convergency - teacher allows only convergent thinking.
2. Encouraged convergency - teacher permits a little divergent thinking while encouraging convergency.
3. Equal divergency-convergency - teacher allows both convergent and divergent response favoring neither.
4. Encouraged divergency - teacher encourages divergent thinking in alternation with convergent.
5. Primary divergency - teacher's main purpose is divergent thinking.

Explanation of Code for Section C. Teacher Role in Encouraging Convergent and Divergent Thinking.

Code 0. - No opportunity to assess.

Code 1. - Primary convergency - Code 1 describes the time interval in which the purpose of the lesson is strictly information presentation and intake. A variety of the following methods and materials may or may not be used; in any case there is no opportunity for children to produce original ideas although they may participate in a discussion to ask questions clarifying information or may present information themselves such as a report on material they have previously gathered. Emphasis in all cases is on the correct or accepted answer or solution. Only convergent thinking is allowed.

For example:
(1) children are reading independently or as a total class to find information.
(2) children are listening to the teacher tell them information.
(3) children are viewing a filmstrip or motion picture without discussion of implications, possibilities, etc.
(4) using maps, charts, etc., to convey information.

(5) use of opaque projector, overhead projector, tape recorder or disk recorder to present information.
(6) children are presenting learned facts. Correct answers, etc.

Code 2. - Encouraged convergency - Although encouraging convergent thinking, the teacher allows departure from any of the above activities of information presentation and intake to ask or allow a child to express his opinion, to speculate as to cause or possible result, etc. Divergent thinking is allowed but not encouraged. During all such departures the teacher dominates the discussion and allows only limited ideation on the part of the child or may simply ignore divergency without comment. The teacher may cut off the pupil response and insert a value statement regarding the pupil responses - accept or reject the response.

Code 3. - Equal Divergency-Convergency - Code 3 differs from Code 2 and 4 in that the teacher allows both divergent and convergent ideation. The teacher responds similarly to both convergent and divergent thinking. Each kind is encouraged and discouraged equally.

Code 4. - Encouraged divergency - Code 4 describes that period of time in which the teacher purposely encourages and provides time for divergent thinking with convergent thinking (information gathering and idea production). For example, after presenting information, the teacher encourages pupil speculation of possible results and action found in the information gathered, implications, improvements, etc. The teacher might ask the children to write original stories or essays about information gathered, draw pictures to illustrate meaning, make a mural or create a play to illustrate meaning of information presented. In arithmetic, the teacher might ask for other ways of finding the solution to a problem or example. Code 4 thus describes teacher variation of purpose in which a lesson is planned to proceed from information gathering to idea production in an alternating process. Convergent thinking is allowed but not encouraged.

Code 5. - Primary divergency - Code 5 describes that period of time in which the teacher's sole purpose is provision for pupil development of ideas. It differs from Code 4 in that the primary purpose is idea production. Where in Code 4 an alternating process of information gathering (convergent) and idea production (divergent) might be observed during a given two minute interval, in Code 5 we find only divergency during the interval.

For example:
(1) the teacher encourages the children to

analyze - to pull apart the whole to study how it became that whole.

(2) experiences are provided for children to put an object or objects into different uses than those commonly known.

(3) chances are given to experiment with a wide variety of materials or bits of information to produce, or work toward a final original result.

(4) children are encouraged to be original in discussing how to go about doing something (i.e., how to build a model farm; how to set up an experiment).

(5) an art or music experience in which children are encouraged to freely express their ideas.

(6) a creative writing experience in which children are encouraged to express their own ideas on paper.

(7) a situation in which groups of children are encouraged to produce group products which are original (i.e., construction of a mural or bulletin board, preparing a dramatic production, preparing original ways to present a report).

D. Pupil Initiative in Control of Instruction

The focal point of this category is pupil-control of instruction. Concern here is the degree to which the pupil is able to participate in controlling the content, speed, direction or method of instruction. Occasionally this will be found as a result of a direct act on the part of the teacher. For example, the teacher might say: "You may decide which books and materials you wish to use to answer these general questions." However, in most instances pupil initiative will be exerted during a discussion or work period. In these cases the direction can be altered by children volunteering information and by the teacher accepting the volunteered information or responding to the information to answer questions and thus causing side-tracks in the flow of the lesson. Sometimes a whole lesson is composed of numerous side-tracks. This would be volunteered information that is not from the textbook or directly in the content of the lesson. In these cases, by virtue of pupil responses, the actual content, speed, and direction of the lesson is determined in large part by the pupil. This can also be seen during a work period. When a child asks for help he is controlling the type, speed, and direction of content for himself. In cases in which a teacher, during a work period, goes to children who are not asking for help, we would have a situation which is more teacher controlled than pupil controlled. This would also be the situation in a discussion if the teacher is only calling on pupils and not responding to those who volunteer information or questions. In either of these cases, however, (work or discussion) if the teacher elaborates on or spends time with a pupil to whom the teacher first responded without the pupil volunteering, this could well become a situation in which the pupil's reaction is controlling the content.

The observer must be careful to identify situations in which pupils are volunteering information but in which the teacher is not accepting the information or is ignoring it without comment and proceeding with a pre-planned lesson. These cases are different from those previously described.

0. No opportunity to assess.
1. Teacher domination - no pupil participation in control of instruction.
2. Teacher domination - minor pupil participation in control of instruction.
3. Teacher control - major pupil participation in control of instruction.
4. Pupil control - teacher participation in control of instruction.
5. Pupil control - no teacher participation in control of instruction.

Explanation of Code for Section D. Pupil Initiative in Control of Instruction.

Code 0. - No opportunity to assess.

Code 1. - Teacher domination - no pupil participation in control of instruction. This code applies to a situation in which the teacher is exercising autocratic control and little or no opportunity is provided for pupil participation in control of the situation. That is, all activities are dictated by the teacher. Some examples of this are:

(1) Teacher announces assignment, test, or work plan.
(2) Teacher presents learning content.
(3) Teacher recites correct answers to written work.
(4) Pupils recite, work at board, etc., as designated by teacher.
(5) Pupils give a teacher-assigned report.

Code 2. - Teacher domination - minor pupil participation in control of instruction. This code applies to a situation in which the teacher is exercising major control, but pupil questions and suggestions are taken into account and used to direct activities to a limited extent. Examples of this are:

(1) Pupils recite, work at board, etc., after having volunteered.
(2) Pupils raise questions regarding subject matter or procedure after teacher asks for same.

Code 3. - Teacher control - major pupil participation in control of instruction. This code is used for a time interval during which the teacher is controlling the

general situation, but pupil initiative is permitted to exert a great deal of control over specific content and activities. That is, the teacher plans the overall structure of the type of learning which is to take place but is sensitive to pupils' needs, suggestions, questions, and planning to determine specific details. An example of this is the situation in which the teacher announces the topic for study and then lets the students plan how the topic should be attacked. Another example is a class discussion period in which a teacher-assigned subject is discussed but where control over the content and activities of the assignment is in the pupils' direction. Still another situation of this type is one in which the teacher makes a general assignment, and students study whatever material they feel applies to the assignment.

Code 4. - Pupil control - teacher participation in control of instruction. This code is used for a time interval during which the students have almost complete control of the learning situation, and the teacher is merely acting as one of the group. This applies to a pure activity-type program in which the pupils are choosing their own activities and proceeding as they see fit, with only occasional guidance from the teacher. It also applies to a period in a more traditional type school in which the pupils are given control of the class. For instance, Code 4 is used if some pupil spontaneously suggests that the class have a party, provide a Christmas basket for a poor family, or some similar activity, and then the teacher lets them proceed with implementing the suggestion.

Code 5. - Pupil control - no teacher participation in control of instruction. This code applies to all situations of extreme pupil control, with no participation by the teacher. The pupils, of course, never have complete control, for at any time it may be a teacher's decision to permit students more or less independent choices on what they do. This is frequently the case at "recess", where there is no organized or supervised activity. Although recess is not covered in classroom observation, similar situations sometimes occur in classrooms. An example is more or less "free activity" of a class preparing for a Christmas play or a dramatization in connection with the study of literature.

SCHEDULE B

This part of the schedule is recorded alternately with every two of schedule A time periods. When one of the listed behaviors is observed during the interval the observer circles the corresponding numeral in the positive or negative box on the score sheet. Circle only once for any given behavior during a time period.

For pupil behaviors (sections A and C) a behavior is recorded only when it is very obvious and for at least half of the class. That is, when everyone would agree that a majority (half) the students were "eager" because of their remarks, that the remarks were "courteous" or "rude", etc. It should be emphasized that these are extreme behaviors. Should there be any doubt about an occurence none should be circled. Furthermore, these behaviors are mutually exclusive. It is not possible to circle both a negative and positive numeral. For example the options in BA, Pupil-Teacher are +1, "Responded eagerly" or -1, "Were reluctant to respond" or neither. Items cannot be observed which cancel each other out.

The score for schedule B is the average difference. This is obtained by dividing the difference score obtained by totaling the positive and negative tallies by the number of time intervals observed. A negative score is thus possible.

A. Pupil Interest (Pupil-Teacher Relationship)

| Positive | Negative |
|---|---|
| (Discussion) | |
| 1. Respond eagerly. | 1. Reluctant to respond, do not volunteer. |
| 2. Make courteous remarks to teacher. | 2. Make rude remarks to teacher. |
| 3. Receive teacher criticism in a positive manner. | 3. Are negative or irritable in response to teacher criticism. |
| (Work-Period) | |
| 4. Work intently with little sign of attention wandering. | 4. Are restless, gaze about, doodle, day-dream, whisper. |
| 5. Promptly take part in activities. | 5. Slowly take part in activities. |

C. Pupil-Pupil Relationship

| Positive | Negative |
|---|---|
| 1. Children refer (verbal or non-verbal) positively to success of others. | 1. Children refer negatively to success of others. |
| 2. Children help each other. | 2. Children are reluctant to help each other. |
| 3. Children accept without comment (or any other overt action) differences in individual capability or response. | 3. Children make fun of or speak about others because of difference in capability of response. |
| 4. Children express appreciation of classmates unusual or different response. | 4. Children make derisive comments or laugh at unusual and different responses of classmates. |

B. Teacher-Pupil Relationship

It is important to note that the teacher response to pupils applies not only in discussion situations but also in work periods. If the teacher ignores the children during the work period busying himself at his desk or on some project unrelated to what children are doing, negative score (-3) would be tallied.

| Positive | Negative |
|---|---|
| 1. Teacher responds positively to pupil contributions. | 1. Teacher responds abruptly and negatively to pupil contributions. |
| 2. Teacher uses "we" approach in talking to children. | 2. Teacher uses "I" approach in talking to children. |
| 3. Teacher is attentive to pupil remarks or questions. | 3. Teacher speaks to other children, cuts off child speaking or is otherwise inattentive. |
| 4. Teacher asks opinion of children not volunteering information (not raising hands for help or to give information). | 4. Teacher acts upon the advice of a few children - not involving most in the discussion. |

D. Teacher Group Approach

It should be noted that some items in this section refer to "phases" or a section of the lesson being observed.

| Positive | Negative |
|---|---|
| 1. Teacher builds and sustains pupil interest. | 1. Teacher does not build and sustain pupil interest. |
| 2. Materials are ready for immediate use. | 2. Materials are not ready for immediate use. |
| 3. Children are actively involved at high point of interest. | 3. Children are actively involved at a point after interest is at its peak. |
| 4. Teacher concludes the lesson or phase while interest still holds. | 4. Conclusion of lesson or phase comes after children appear to be restless. |

SCHEDULE C

B. Teacher Encouragement of Unusual Responses

Record here the tally of times the teacher encourages unusual responses. Record a tally mark at any time during the observation it occurs. Encouragement may be verbal or non-verbal (i.e., smiling or laughing appreciatively). It should be noted that unusual responses may be either of a direct or indirect type and the teacher encouragement may also be direct or indirect. Examples of direct encouragement of direct, unusual responses are: "That was a very good answer, George, it was an idea no one else thought of!"; "Can we have some original ideas?"; "Let's see how many new ways we can think of for doing this."

The observer must beware of teacher use of sarcasm and record only obviously genuine teacher encouragement of unusual responses. In the case in which the teacher has asked for unusual responses and then rewards these responses with brief comments such as "good", "fine", or a smile or nod of the head, these brief rewards in this context would also be tallied as encouragement of unusual responses. An example of indirect unusual responses would be a situation in which a child produces an unusual response in the midst of a discussion or situation in which usual responses are the norm and the teacher approves of his unusual response and rewards him positively for it in an indirect manner rather than squelching this response. For example, the class might be discussing current events and the child might make an unusual suggestion about solving an international problem. The teacher could reward this response by approving of it.

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APPENDIX

Classroom Creativity Observation Schedule (CCOS) Total Score _____

Teacher _____ Grade _____

Observer _____ Date _____ From _____ to _____

Total Minutes _____

Schedule A.

| | 1 | 2 | 4 | 5 | 7 | 8 | 10 | 11 | 13 | 14 | Tot. | Aver. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A. Motivational Climate | | | | | | | | | | | | |
| C. Divergency | | | | | | | | | | | | |
| D. Initiative in Control | | | | | | | | | | | | |

Schedule B.

(Pupil behaviors)

| | | 3 | 6 | 9 | 12 | 15 | Tot. | Dif./ Aver. |
|---|---|---|---|---|---|---|---|---|
| A. Pupil Interest (Disc.) | | 1 2 3 4 5 | 1 2 3 4 5 | 1 2 3 4 5 | 1 2 3 4 5 | 1 2 3 4 5 | | |
| 1. Resp. Eagerly - Reluc. Resp. | + | | | | | | + | |
| 2. Court. Resp. - Rude Resp. | | | | | | | | |
| 3. Rcd. Crit. Pos. - Neg. Resp. to Crit. (Work-period) | | 1 2 3 4 5 | 1 2 3 4 5 | 1 2 3 4 5 | 1 2 3 4 5 | 1 2 3 4 5 | | |
| 4. Wk. Intently - Restless, etc. | - | | | | | | - | |
| 5. Prompt part. - Slowly part. | | | | | | | | |
| C. Pupil-Pupil | | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | | |
| 1. Ref. pos. other - Ref. neg. other | + | | | | | | + | |
| 2. Help ea. other - Relu. help oth. | | | | | | | | |
| 3. Accep. diff. - Fun. diff. | | | | | | | | |
| 4. Exp. appr. unu. - Deri. of unusual | - | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | - | |

(Teacher behaviors)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| B. Teacher-Pupil | | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | | |
| 1. Resp. pos. - Resp. neg. & abru. | | | | | | | | |
| 2. "We" appro. - "I" appro. | + | | | | | | + | |
| 3. Attn. t pup. - inatten. to pupil | | | | | | | | |
| 4. Attn. n-vol. - Dn ask n-vol. | | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | | |
| | - | | | | | | - | |
| D. Teacher Group Approach | | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | | |
| 1. Build & Sust. int. - Does not Build & Sust. Int. | + | | | | | | + | |
| 2. Mat. ready - Mat. n-ready | | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 | | |
| 3. Ch. inv. HPnt. - Ch. inv. after HP- | | | | | | | | |
| 4. Conc. wh. inter. - Conc. aft. inter. | - | | | | | | - | |

Schedule C. (tally as occur)

B. Teacher Encouragement of Unusual Responses

Tally _____ Total _____

(Revision 4/18/69 - Copyright 1969, David A. Denny) 

## QUICK COMPUTATION TABLE

| Dividend | Divisors | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | | .500 | .333 | .250 | .200 | .167 | .143 | .125 | .111 |
| 2 | | 1.000 | .667 | .500 | .400 | .333 | .286 | .250 | .222 |
| 3 | | 1.500 | 1.000 | .750 | .600 | .500 | .429 | .375 | .333 |
| 4 | | 2.000 | 1.333 | 1.000 | .800 | .667 | .571 | .500 | .444 |
| 5 | | 2.500 | 1.667 | 1.250 | 1.000 | .833 | .714 | .625 | .556 |
| 6 | | 3.000 | 2.000 | 1.500 | 1.200 | 1.000 | .857 | .750 | .667 |
| 7 | | 3.500 | 2.333 | 1.750 | 1.400 | 1.167 | 1.000 | .875 | .778 |
| 8 | | 4.000 | 2.667 | 2.000 | 1.600 | 1.333 | 1.143 | 1.000 | .889 |
| 9 | | 4.500 | 3.000 | 2.250 | 1.800 | 1.500 | 1.286 | 1.125 | 1.000 |
| 10 | | 5.000 | 3.333 | 2.500 | 2.000 | 1.667 | 1.429 | 1.250 | 1.111 |
| 11 | | 5.500 | 3.667 | 2.750 | 2.200 | 1.833 | 1.571 | 1.375 | 1.222 |
| 12 | | 6.000 | 4.000 | 3.000 | 2.400 | 2.000 | 1.714 | 1.500 | 1.333 |
| 13 | | 6.500 | 4.333 | 3.250 | 2.600 | 2.167 | 1.857 | 1.625 | 1.444 |
| 14 | | 7.000 | 4.667 | 3.500 | 2.800 | 2.333 | 2.000 | 1.750 | 1.556 |
| 15 | | 7.500 | 5.000 | 3.750 | 3.000 | 2.500 | 2.143 | 1.875 | 1.667 |
| 16 | | 8.000 | 5.333 | 4.000 | 3.200 | 2.667 | 2.286 | 2.000 | 1.778 |
| 17 | | 8.500 | 5.667 | 4.250 | 3.400 | 2.833 | 2.429 | 2.125 | 1.889 |
| 18 | | 9.000 | 6.000 | 4.500 | 3.600 | 3.000 | 2.571 | 2.250 | 2.000 |
| 19 | | 9.500 | 6.333 | 4.750 | 3.800 | 3.167 | 2.714 | 2.375 | 2.111 |
| 20 | | 10.000 | 6.667 | 5.000 | 4.000 | 3.333 | 2.857 | 2.500 | 2.222 |
| 21 | | 10.500 | 7.000 | 5.250 | 4.200 | 3.500 | 3.000 | 2.625 | 2.333 |
| 22 | | 11.000 | 7.333 | 5.500 | 4.400 | 3.667 | 3.143 | 2.750 | 2.444 |
| 23 | | 11.500 | 7.667 | 5.750 | 4.600 | 3.833 | 3.286 | 2.875 | 2.556 |
| 24 | | 12.000 | 8.000 | 6.000 | 4.800 | 4.000 | 3.429 | 3.000 | 2.667 |
| 25 | | 12.500 | 8.333 | 6.250 | 5.000 | 4.167 | 3.571 | 3.125 | 2.778 |
| 26 | | 13.000 | 8.667 | 6.500 | 5.200 | 4.333 | 3.714 | 3.250 | 2.889 |
| 27 | | 13.500 | 9.000 | 6.750 | 5.400 | 4.500 | 3.875 | 3.375 | 3.000 |
| 28 | | 14.000 | 9.333 | 7.000 | 5.600 | 4.667 | 4.000 | 3.500 | 3.111 |
| 29 | | 14.500 | 9.667 | 7.250 | 5.800 | 4.883 | 4.143 | 3.625 | 3.222 |
| 30 | | 15.000 | 10.000 | 7.500 | 6.000 | 5.000 | 4.286 | 3.750 | 3.333 |
| 31 | | 15.500 | 10.333 | 7.750 | 6.200 | 5.167 | 4.429 | 3.875 | 3.444 |
| 32 | | 16.000 | 10.667 | 8.000 | 6.400 | 5.333 | 4.571 | 4.000 | 3.556 |
| 33 | | 16.500 | 11.000 | 8.250 | 6.600 | 5.500 | 4.714 | 4.125 | 3.667 |
| 34 | | 17.000 | 11.333 | 8.500 | 6.800 | 5.667 | 4.857 | 4.250 | 3.778 |
| 35 | | 17.500 | 11.667 | 8.750 | 7.000 | 5.833 | 5.000 | 4.375 | 3.889 |

| Dividend | Divisors | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 36 | | 18.000 | 12.000 | 9.000 | 7.200 | 6.000 | 5.143 | 4.500 | 4.000 |
| 37 | | 18.500 | 12.333 | 9.250 | 7.400 | 6.167 | 5.286 | 4.625 | 4.111 |
| 38 | | 19.000 | 12.667 | 9.500 | 7.600 | 6.333 | 5.429 | 4.750 | 4.222 |
| 39 | | 19.500 | 13.000 | 9.750 | 7.800 | 6.500 | 5.571 | 4.875 | 4.333 |
| 40 | | 20.000 | 13.333 | 10.000 | 8.000 | 6.667 | 5.714 | 5.000 | 4.444 |
| 41 | | 20.500 | 13.667 | 10.250 | 8.200 | 6.833 | 5.857 | 5.125 | 4.556 |
| 42 | | 21.000 | 14.000 | 10.500 | 8.400 | 7.000 | 6.000 | 5.250 | 4.667 |
| 43 | | 21.500 | 14.333 | 10.750 | 8.600 | 7.167 | 6.143 | 5.375 | 4.778 |
| 44 | | 22.000 | 14.667 | 11.000 | 8.800 | 7.333 | 6.286 | 5.500 | 4.889 |
| 45 | | 22.500 | 15.000 | 11.250 | 9.000 | 7.500 | 6.429 | 5.625 | 5.000 |
| 46 | | 23.000 | 15.333 | 11.500 | 9.200 | 7.667 | 6.571 | 5.750 | 5.111 |
| 47 | | 23.500 | 15.667 | 11.750 | 9.400 | 7.833 | 6.714 | 5.875 | 5.222 |
| 48 | | 24.000 | 16.000 | 12.000 | 9.600 | 8.000 | 6.857 | 6.000 | 5.333 |
| 49 | | 24.500 | 16.333 | 12.250 | 9.800 | 8.167 | 7.000 | 6.125 | 5.444 |
| 50 | | 25.000 | 16.667 | 12.500 | 10.000 | 8.333 | 7.143 | 6.250 | 5.556 |